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OHIO STATE UNIVERSITY AGRICULTURAL COLLEGE EXTENSION SERVICE
H. C. RAMSOWER, Director

Poultry Profits in Ohio in 1925

Keeping her poultry records up to date

By

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THE OHIO STATE UNIVERSITY, COOPERATING WITH THE U. S. DEPARTMENT OF AGRICULTURE,
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THE successful poultryman has two problems to solve—that of production, which is largely an individual problem to be worked out by the poultryman for himself, and that of marketing, which may be a group problem or individual problem. For the average Ohio poultryman the most important problem still to be solved is that of economical production. Without economical production there can be no profits.

The only figures available indicate that the average farmer in Ohio makes little or nothing on his poultry. The reason for this, generally speaking, is that the poultry flock is poorly managed. Poor management may be the result of not knowing the facts, or it may be the result of not being able to put facts to use after they are acquired.

Records of the 461 Poultry Demonstration Farms

The object of this bulletin is to present some facts regarding the poultry business in Ohio. These facts were obtained from the records of 461 farmers and poultry keepers who, during the year of 1925, kept cost account records on their poultry in cooperation with the county agricultural agents and the Extension Service of Ohio State University. These records were from practically every county in the state, and present a good cross section of the better type poultry enterprise in Ohio.

Eggs and poultry products are being shipped regularly to Ohio markets from different sections of the country, including the Pacific Coast. Competition is becoming more pronounced each year. If the Ohio poultryman is to meet this competition successfully he must be able to produce as efficiently as others. Ohio is well located for the poultry business, having relatively cheap feed and large and expanding markets in the same state, a condition which exists in practically no other state.

To be able to produce efficiently, poultrymen must have facts to guide them. It is hoped that this bulletin will present some facts in such manner that they will be of benefit to Ohio poultrymen in increasing their profits.

SOME FACTS ABOUT THE POULTRY DEMONSTRATION FARMS

There were 461 flock owners who completed their records for the year 1925. These 461 flocks produced $653,028.90 worth of products, and netted to their owners, above all expenses, $300,568.72. They produced 109 carloads of eggs, or enough to supply the egg demands of over 80,000 people for a year; and contained enough hens to make a train load of over 27 cars. To house all the hens included in these records would require a house 20 feet in depth and over 5 miles in length.

When it is considered that there is in the neighborhood of 250,000 farms in Ohio and that the figures included here represent only 461 of these farms, poultry keepers need not feel ashamed of the magnitude of the business in which they are engaged.

TABLE No. I.—*General Data Concerning 461 Ohio Poultry Demonstration Farms*

ITEM	1925	1924
Number of flocks	461	440
Average number of hens	111,613	103,167
Number of hens at beginning of year	138,293	129,658
Number of hens at end of year	56,966	60,506
Percent reduction in size of flock	58.8	53.4
Number of eggs (based on flock averages)	15,659,304	14,258,112
Number of dozens	1,304,942	1,188,176
Cash receipts	$ 653,028.90	$ 535,981.26
Total expenses	394,740.02	325,379.90
Feed cost	296,037.96	214,836.97
Cash return above feed cost	356,990.94	321,144.29
Labor income	300,568.72	258,236.52
Investment	419,800.43	377,619.49
Mortality of hens	14,243	13,922
Number of hens sold or consumed on farm	67,084	55,234

AVERAGES OF THE 461 DEMONSTRATION FARMS

The averages shown below give a good idea of what the better class of poultrymen did in 1925. They also give those expecting to go into the poultry business some idea of what they may expect, and for those who keep no records it may furnish some interesting information. For demonstration farm owners it will be interesting, no doubt, to know what the results are, taken from a statewide standpoint.

TABLE No. II.—*Poultry Data Averages Concerning 461 Ohio Poultry Demonstration Farms*

ITEM	1925	1924
Number of flocks	461	440
Average number of hens for year	242	234
Average number of hens at beginning of year	300	294
Average number of hens at end of year	124	137
Percent reduction in size of flock	58.8	53.4
Egg production per hen (based on flock averages)	140.3	138.2
Cash receipts per hen	$5.85	$5.19
Total expenses per hen	$3.54	$3.15
Feed cost per hen (includes cost of rearing young)	$2.65	$2.08
Cash returns per hen above feed	$3.20	$3.11
Labor income per hen		
a. Based on number of hens at beginning of year	$2.17	$1.99
b. Based on average number of hens for year	$2.69	$2.50
Investment per hen	$3.04	$2.91
Percent mortality per flock	10.3	10.7
Number of hens consumed or sold per flock	145	125
Feed cost per dozen eggs (includes cost of rearing young)	$0.227	$0.181
Total cost per dozen eggs (includes all expenses except labor)	$0.302	$0.274
Percent feed cost of total expense	74.9	66.3

The egg production per hen was slightly larger in 1925, and the profit or labor income was also slightly larger. Receipts were considerably larger, which can be explained by the fact that eggs remained high in price during the fall and winter because of the unfavorable weather, and because the price during the spring months was higher than usual due to the high price paid for storage eggs. However, feed costs were also higher, so that the greater receipts were offset largely by the increased feed costs per hen.

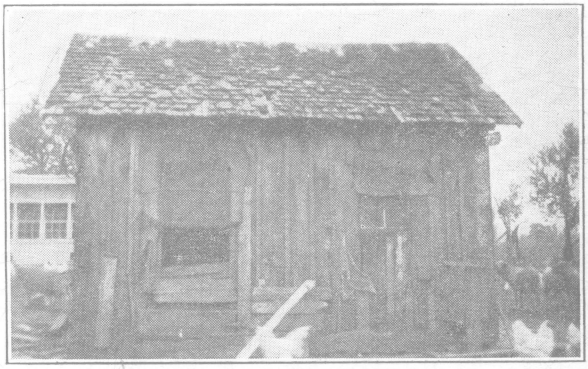

Fig. 1.—A typical home of the farm poultry flock of a few years ago

As a result of these increased feed costs this item increased from 66 percent of the total expenses in 1924 to 75 percent in 1925. Miscellaneous expenses (not shown in table) were slightly lower than for 1924.

More hens were sold per flock and hence more culling was done than in 1924, which may have been the result of slightly higher prices for poultry or closer culling on the part of producers. The mortality rate was little different from that of the previous year.

EGG PRODUCTION

In all the tables the flocks have been grouped in two classes, all those comprising the light breeds, such as Leghorns and Anconas, being in one class, and the heavy breeds, such as Rhode Island Reds, Plymouth Rocks, and Wyandottes, in the other class.

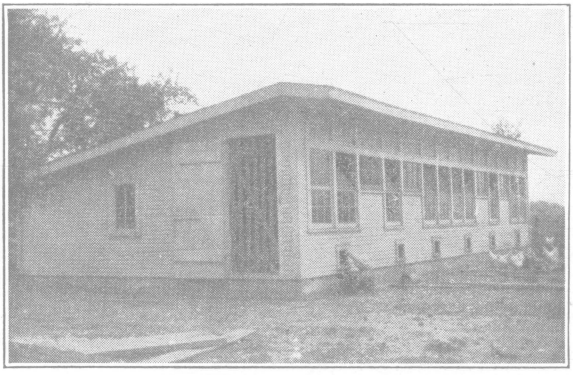

Fig. 2—A modern multiple-unit poultry house has replaced the house shown in Fig. 1

This classification was done in order to get a comparison in all factors between the light and heavy breeds. The flocks in both heavy and light breed classes have been subdivided into four groups, those above 180 eggs per hen, those between 140 and 180, those between 100 and 140, and those below 100.

Relation of Egg Production to Cash Receipts, Expenses, and Labor Income.—Table III shows that as the egg production decreased the cash receipts also decreased. Since egg receipts constitute by far the largest income item it is natural that the receipts should decrease when egg production decreases. Profits are determined in large part by the amount of receipts, and unless a good egg production is secured the receipts and profits are sure to be low.

The other income items, such as hens and broilers, tend to remain more or less stationary regardless of egg production, and therefore the flock owner's principal opportunity of increasing receipts is by increased egg production.

TABLE NO. III.—*Relation of Egg Production to Receipts, Expenses, and Labor Income*

Egg production classification	Breed classification	No. flocks *	Egg production per bird (based on flock av'ges)	Total cash receipts per bird	Total expenses per hen	Cash returns above feed per hen	Labor income per hen based on	
							No. hens beginning year	Average No. hens for year
180 and over	Light	18	193.1	$8.45	$4.87	$3.58	4.04	5.06
140 to 180..	Light	147	156.1	6.19	3.61	2.58	2.52	3.09
100 to 140..	Light	87	125.0	4.53	2.94	2.39	1.49	1.74
Under 100...	Light	10	87.4	3.42	2.18	1.24	.69	.85
180 and over	Heavy	2	186.3	9.55	3.64	5.91	4.17	6.01
140 to 180..	Heavy	52	154.2	7.85	4.34	3.51	3.01	4.07
100 to 140..	Heavy	83	122.6	6.07	3.84	2.23	1.83	2.41
Under 100...	Heavy	13	85.9	4.38	2.26	2.12	.82	1.00
All flocks....	Light	262	145.7	5.67	3.41	3.14	2.21	2.68
All flocks....	Heavy	150	131.2	6.56	3.87	3.59	2.19	2.89

* Forty-nine flocks of mixed breeds not shown.

Expenses also decreased with egg production. Since feed constitutes the largest expense item, and since decreased egg production must result in decreased feed costs, it is logical to expect expenses to decrease with egg production. Expenses should not worry the flock owner, provided these expenses result in increased receipts and profits. For instance, in the light breeds the difference in expenses between the flocks above 180 eggs per hen and those below 100 was $2.69, while the difference in cash receipts was $5.03. In other words, $2.69 expended brought in $5.03.

The reason the expenses were so low in the two heavy-breed flocks over 180 eggs was because both flocks had low inventory values on buildings and equipment, and consequently had very low interest and depreciation charges.

Most people keep poultry primarily for profit. The table shows conclusively that the higher the egg production the greater the profits. Since feed cost is the main item of expense in increasing egg production, and since eggs are practically always worth more than the feed it costs to make them, it is easy to see that as the egg production is increased the profits are sure to increase.

In a comparison of the light and heavy breeds it will be noticed that the light breeds averaged 14.5 eggs per hen more. The receipts of the heavy breeds, however, was larger, due no doubt to the increased receipts from a larger percent of the flocks being sold and a better price for the hens and broilers. The owners of the heavy-breed flocks, as will be shown later, sold more hens per flock. The expenses in the heavy-breed flocks were also greater, so that the net profits or labor income was very little different between the two classes.

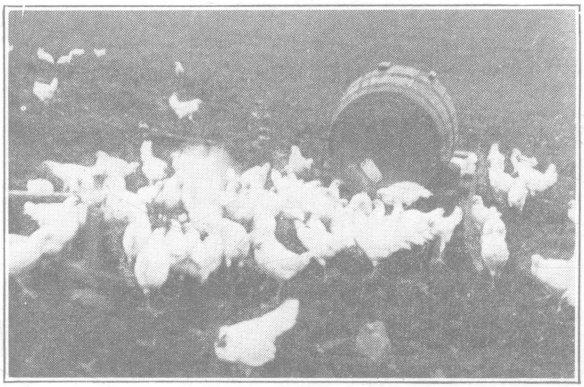

Fig. 3.—Free drink! Come and get it. Barrel filled as needed

Relation of Egg Production and Labor Income to Feed Cost per Hen and per Dozen Eggs.—Feed constituted 75 percent of all expenses, and was the largest expense item. It will be noted that as egg production and profits decreased feed costs decreased. Eggs and chickens are made of feed, and without feed neither can be had, hence the amount of feed used is an indication of the amount of material produced. When feed costs are low, egg production and profits are sure to be low. In the heavy breeds there was a difference between the high and low groups of $1.59 feed cost per hen, (see Table IV), whereas the difference in receipts, as shown in Table III, was $5.17. In other words, $1.59 worth of feed produced $5.17 worth of poultry and eggs. Very few farmers can invest their money in a more profitable manner than in chicken feed.

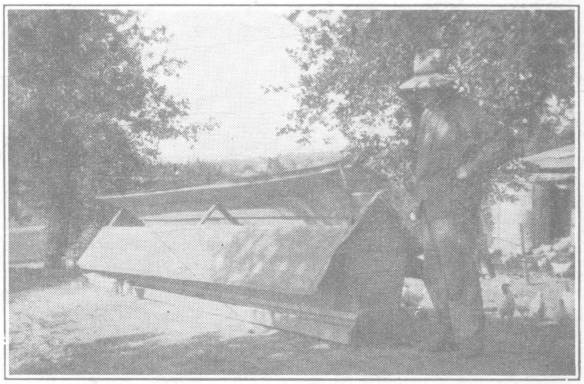

Fig. 4.—Hopper feeding saves time and labor and is a satisfactory and economical system of feeding

In these tables the feed cost of rearing the young is included. The feed cost per dozen is therefore higher than the actual feed required to produce the eggs. This feed, however, is a legitimate flock expense. Also the higher-producing flocks reared more young than the low-producing flocks, which makes the feed cost per dozen in the high-producing flocks appear higher than it otherwise would.

TABLE No. IV.—*Relation of Egg Production and Labor Income to Feed Cost Per Hen and Per Dozen Eggs*

Egg production classification	Breed classification	No. flocks *	Egg production per bird (based on flock averages)	Labor income per hen based on		Feed cost (Includes cost of rearing young)	
				No. birds beginning of year	Average No. birds	Per hen	Per dozen
Over 180.....	Light	18	193.1	$4.04	$5.06	$3.52	$0.219
140 to 180...	Light	147	156.1	2.52	3.09	2.64	.203
100 to 140...	Light	87	125.0	1.49	1.74	2.26	.217
Under 100...	Light	10	87.4	.69	.85	1.73	.237
Over 180.....	Heavy	2	186.3	4.17	6.01	3.34	.215
140 to 180...	Heavy	52	154.2	3.01	4.07	3.36	.26
100 to 140...	Heavy	83	122.6	1.83	2.41	2.93	.287
Under 100...	Heavy	13	85.9	.82	1.00	1.75	.243
All flocks....	Light	262	145.7	2.21	2.68	2.53	$0.209
All flocks....	Heavy	150	131.2	2.19	2.89	2.97	$0.272

* Forty-nine flocks of mixed breeds not shown.

It will be noticed in the averages for all flocks that it took considerably more to feed the heavy-breed hens and consequently more feed per dozen eggs. Although the heavy breeds, with the same egg production, bring in more money because of the greater receipts from hens and broilers, they have greater expenses, and feed is the largest of these increased expenses.

Relation of Egg Production and Labor Income to Size of Flock, Culling, and Mortality.—The heaviest-producing flocks in both classes were the smallest in size of any of the production groups. With equal care and breeding there is no doubt that smaller flocks produce the most eggs. Except for these highest-producing groups there is no correlation between egg production and size of flock. The natural advantage of having smaller flocks apparently was offset by the poor care which many of the small flocks were given.

There was little correlation between egg production and reduction in the size of flock, except in the lowest-producing group of the heavy breeds. In this group fewer hens were sold, which may be explained by the fact that many of the owners of the smaller flocks do not have proper brooding equipment and do not rear as many pullets each year. The owners of the high-producing flocks undoubtedly cull and sell their hens earlier in the summer and fall than do those with low-producing flocks, and this fact is one of the important points in keeping up egg production per hen.

There appeared to be little connection between egg production and mortality, except that in both heavy and light breeds the highest producing flocks had the lowest mortalities. This is contrary to the general belief among farmers and poultrymen. Apparently factors other than heavy laying are the controlling ones in mortality, and among these neglect is probably important.

The heavy-breed flocks were much smaller than the light-breed ones. This is accounted for by the fact that practically all of the large flocks are Leghorns, very few people having large flocks of the heavy breeds. For the general farm flock the heavy breeds are the most popular.

TABLE No. V .—*Relation of Egg Production and Labor Income to Size of Flock, Culling, and Mortality*

Egg production classification of flocks	Breed classification	No. flocks *	Egg production per hen (based on flock av'ges)	Labor income per hen (based on av. No. birds)	Average size flock			Percent reduction in size of flock	Percent mortality
					Ave. No. hens for year	No. hens beginning of year	No. hens end of year		
Over 180....	Light	18	193.1	$5.06	275	345	136	60.6	9.6
140 to 180..	Light	147	156.1	3.09	315	387	161	58.4	10.8
100 to 140..	Light	87	125.0	1.74	305	357	172	51.8	11.9
Under 100..	Light	10	87.4	.85	339	431	172	60.1	11.2
Over 180....	Heavy	2	186.3	6.01	103	148	57	61.5	3.4
140 to 180..	Heavy	52	154.2	4.07	131	177	59	66.6	6.1
100 to 140..	Heavy	83	122.6	2.41	136	179	62	65.4	9.1
Under 100..	Heavy	13	85.9	1.00	135	166	91	45.2	8.7
All flocks...	Light	262	145.7	2.68	310	376	163	56.6	11.1
All flocks...	Heavy	150	131.2	2.89	134	177	63	64.4	8.0

* Forty-nine flocks of mixed breeds not shown.

There were more hens sold out of the heavy-breed flocks than out of the light-breed ones. This is probably because the hens bring more on the market. There was a heavier mortality in the light breeds than in the heavy breeds. No explanation can be offered unless it be that the Leghorns are kept in larger flocks, and that usually there are greater mortalities in larger flocks.

LABOR INCOME

Labor income means the net profit, or all receipts plus any increase in inventory minus all expenses and any decrease in inventory. Receipts include sales from eggs, hens, broilers, hatching eggs, breeding stock, etc. Expenses include feed, baby chicks purchased, brooder stoves, fuel, buildings, breeding stock, etc., interest on invested capital, taxes, and insurance. Most people keep poultry primarily for the profits derived, and the factors that are responsible for profits and losses should be thoroughly understood by all farmers and poultrymen.

Relation of Labor Income to Receipts and Expenses.—Table VI shows that the greater the receipts the greater the labor income. When a good egg production is secured, a time seldom occurs when eggs cannot be produced at a profit; and the greater the egg production the less the cost per dozen of production and hence greater profits. Greater receipts indicate that more eggs, hens, and broilers were sold at the seasons when prices were highest, and since the cost of production at these high priced seasons was only slightly higher, increased profits were the result.

The figures also show that along with greater profits and receipts go greater expenses. However, since feed constitutes the greatest item of expense, and since it is impossible to get greater egg production without increased feed cost, it is perfectly natural that expenses should increase with

profits. Miscellaneous expenses also were slightly greater in the higher-producing flocks as a result of better equipment.

TABLE NO. VI.—*Relation of Labor Income to Receipts and Expenses*

Egg production classification of flocks	Breed classification	No. flocks *	Labor income per hen (average No. birds)	Total cash receipts per hen	Total expenses per hen
Over 180	Light	18	$5.06	$8.45	$4.86
140 to 180	Light	147	3.09	6.19	3.61
100 to 140	Light	87	1.74	4.53	2.94
Under 100	Light	10	.85	3.42	2.18
Over 180	Heavy	2	6.01	9.55	3.64
140 to 180	Heavy	52	4 07	7.85	4.34
100 to 140	Heavy	83	2.41	6.07	3.84
Under 100	Heavy	13	1.00	4.38	2.26
All flocks	Light	262	2.68	5.67	3.41
All flocks	Heavy	150	2.89	6.56	3.87

* Forty-nine flocks of mixed breeds not shown.

The question concerning expenses is whether or not they result in increased profits. The difference in expenses between the high and low groups in the light breeds was $2.68, which resulted in an increase of $5.03 in receipts and $4.21 in labor income. In other words, an investment of $2.68 paid dividends of $4.21. Large profits are usually made by investing money to good advantage, and this certainly is true in the poultry business. Most Ohio farmers could profitably invest more money in their poultry.

Relation of Egg Production and Labor Income to Investment, and Gain or Loss in Inventory.—In the light breeds there was a direct correlation between the egg production and labor income and the total investment per bird. In the heavy breeds this correlation did not exist, but there were so few flocks in the high and low groups that it would hardly warrant a conclusion either way. Other things being equal, it would appear that those with better equipment and larger investment get the better results.

It will also be noticed that the highest-producing flocks in the light breeds had the greater increase in inventory and that the lowest-producing flocks in both light and heavy breeds showed a loss in inventory. The highest-producing group in the heavy breed class contained only two flocks and was the exception to the rule in that the investment was low and the increase in inventory was low.

This condition may be logically explained by saying that the cooperators are following the conclusions taught by their records, namely, that those capable of getting a high egg production per bird are making profits and are justified in spending more money for expansion, while those who find it impossible to get a high egg production are not finding the business very profitable and are not expanding.

TABLE No. VII.—*Relation of Egg Production and Labor Income to Investment and Gain or Loss in Inventory*

Egg production classification of flocks	Breed classification	No. flocks *	Egg production per bird (based on flock av'ges)	Labor income per bird (average No. birds)	Investment per bird				Inventory	
					Houses	Stock	Misc.	Total	Gain	Loss
Over 180..	Light	18	193.1	$5.06	$1.96	$1.27	$0.58	$3.81	$1.47	
140 to 180.	Light	147	156.1	3.09	1.43	1.26	0.39	3.08	.60	
100 to 140.	Light	87	125.0	1.74	1.36	1.14	0.24	2.74	.20	
Under 100.	Light	10	87.4	.85	1.28	1.21	0.22	2.71		.42
Over 180...	Heavy	2	186.3	6.01	.34	1.45	0.16	1.95	0.10	
140 to 180.	Heavy	52	154.2	4.07	1.48	1.43	0.40	3.31	.58	
100 to 140.	Heavy	83	122.6	2.41	1.40	1.48	0.32	3.20	.18	
Under 100.	Heavy	13	85.9	1.00	1.66	1.52	0.38	3.56		.39
All flocks..	Light	262	145.7	2.68	1.43	1.22	0.34	2.99	.48	
All flocks..	Heavy	150	131.2	2.89	1.44	1.47	0.35	3.26	.26	

* Forty-nine flocks of mixed breeds not shown.

Gain in inventory is invariably due to the raising of more young stock than was raised the previous year, although occasionally a new house is built to house the same size flock. Cost of the chicks, fuel, etc., needed in rearing the extra chicks is recorded in expenses other than feed, so that the cost of rearing the young stock was less than its value at the end of the year, resulting in a gain in inventory.

This table indicates in general that those with the better equipment, and hence greater investment, get the better results, and that the business is being expanded only when profits warrant expansion.

BREED COMPARISONS

Tables VIII and IX show the relation of the breed and the following factors: Egg production per hen, size of flock, reduction in size of flock, mortality, labor income, total receipts, feed cost per hen and per dozen eggs, and investment per bird.

Because of the desirability of having the results on several flocks in order to justify conclusions, the only averages used were those for the four main breeds, Leghorns, Plymouth Rocks, Wyandottes, and Rhode Island Reds, and those composed of more than one breed.

Table No. VIII shows that Leghorn flocks constituted more than half of those reporting, and that the average size of Leghorn flocks was more than twice as large as any other breed. This would indicate that the larger flocks were composed mostly of Leghorns and that they were apparently more adaptable to large flocks.

The Leghorns had a larger egg production per hen than any other breed, while the three heavy breeds were very close together, only a difference of slightly over two eggs per hen between the highest and the lowest in the

TABLE No. VIII.—*Breed Comparisons in Relation to Egg Production, Size of Flock, Reduction in Size of Flock and Mortality*

Breed classification	No. flocks	Total No. birds	Egg production per hen (based on flock av'ges)	Average size flock			Percent reduction in size of flock	Percent mortality
				Average No. hens for year	Average No. beginning of year	Average No. end of year		
Leghorns	255	79,340	145.9	311	377	163	57.8	10.8
Two Breeds	49	10,441	139.1	213	273	95	66.2	9.1
Rhode Island Reds	46	5,993	133.2	130	172	60	65.1	7.2
Plymouth Rocks	62	8,374	131.2	135	177	65	63.3	8.4
Wyandottes	31	4,059	130.8	131	169	68	59.8	7.3
Average of 5 classifications above	443	108,207	140.7	302	242	125	58.7	10.1
Average all breeds	461	111,613	140.3	300	242	124	58.7	10.3

TABLE No. IX.—*Breed Comparisons in Relation to Labor Income, Receipts, Feed Cost, and Investment*

Breed classification	No. flocks	Egg production per hen (based on flock av'ges)	Labor income per hen based on		Total cash receipts per hen	Total expenses per hen	Feed cost (includes cost of rearing young)		Investment per hen
			No. beginning	Average number			Per hen	Per doz.	
Leghorns	255	145.9	$2.23	$2.70	$5.70	$3.43	$2.55	$ .209	$2.98
Two Breeds	49	139.1	1.89	2.42	5.91	3.93	2.95	.254	2.90
Rhode Island Reds	46	133.2	2.39	3.17	6.58	3.72	2.99	.270	2.90
Plymouth Rocks	62	131.2	1.95	2.36	6.30	3.80	2.93	.269	3.31
Wyandottes	31	130.8	2.31	2.98	6.65	4.00	2.87	.263	3.73
Average of 5 classifications above	443	140.7	2.19	2.70	5.85	3.54	2.65	.227	3.06
Average all breeds	461	140.3	2.17	2.69	5.85	3.54	2.65	.227	3.04

heavy breeds. This seems to bear out the prevailing idea that the Leghorns are better egg producers than the heavy breeds. In order to avoid argument, however, we hasten to add that there are a great many exceptions to this rule. Many of the lowest-producing flocks were also Leghorns, but generally speaking, the Leghorns seem to have the edge on the other breeds.

The Leghorns, although suffering a heavier mortality than any other breed, were culled less and made a higher egg production per hen with less culling. Just why the Leghorns had a heavier mortality we cannot say, unless it was that they were kept in larger flocks, where there is more apt to be trouble with outbreaks of disease.

Table No. III shows that the light breeds produced 14.5 eggs more per bird than the heavy breeds, but that the total receipts were 89 cents more per bird with the heavy breeds, due largely to increased meat receipts from hens and broilers. It will be recalled that more hens were sold from the heavy-breed flocks than from the light-breed flocks, and that the total expense per bird was 46 cents greater with the heavy breeds, so that the labor income per hen, based on the number of hens at the beginning of the year, was practically the same. Based on the average number of hens for the year, the heavy breeds showed a labor income of 21 cents more than the light breeds. This was due, however, to the fact that the heavy breeds were culled more rigorously, and hence would show a lower average number for the year and a slightly greater labor income per hen.

A comparison of the other factors can be noted in the tables and require no comment.

MONTHLY ANALYSIS OF PRODUCTION AND MORTALITY

Table No. X shows the average production per hen by months on all flocks, and the monthly averages on the high and low flocks, together with the standard of 160 eggs per hen for the year.

In no month did the average for all flocks reach the standard of that for the 160-egg flock.

There was not any great variation in the mortality rate from month to month, except that during the spring months the rate seemed to be slightly greater.

TABLE NO. X.—*Monthly Analysis of Egg Production and Mortality*

Month	Percent mortality	160-egg standard	Egg production per hen		
			Average 161 flocks	High flock	Low flock
November	.4	5	4.9	16.7	.3
December	1.0	8	6.2	19.9	1.4
January	.9	10	7.6	17.8	6.8
February	.9	13	9.8	16.0	12.4
March	1.4	16	15.6	21.2	10.4
April	1.4	20	18.4	23.3	10.0
May	1.0	21	18.5	22.3	9.7
June	1.5	18	15.0	19.5	7.9
July	1.4	17	14.9	19.0	6.3
August	1.2	14	13.0	16.4	6.5
September	.1	11	10.5	14.7	2.3
October	.9	7	5.9	6.6	.7
Totals	12.1	160	140.3	213.4	74.7

Calendar Summary

During the last year 756 people kept a complete record of their egg production on the calendars furnished by the University. In addition, each cooperator filled out a questionnaire relative to the type of flock kept, and its management. Thus we are able to make analytical studies of various factors in management and their effect on the egg production per bird.

The first table shows the total number of hens, the number of flocks, the average size flock, and the egg production per bird all by months for the flocks composed of pullets, hens, hens and pullets together, and for all flocks.

It is interesting to note that on the average the folks with larger numbers of birds are keeping their hens and pullets separate. This is shown by

Discussions in community groups help to solve some of the chick problems

the fact that the average size of the pullet flock, added to the average size of the hen flock, is greater than the average size of the flocks where the hens and pullets are kept together.

The percent reduction in the size of flocks includes both the mortality and the number culled. The reduction was greatest in the flocks where the hens and pullets were kept together, and least in the flocks composed entirely of pullets.

There was a decided difference in the production of the flocks composed entirely of hens and those composed entirely of pullets, the difference for the year amounting to 26 eggs per bird. It is of importance to note that practically all this difference comes during the first nine months of the year, but that the hens never equal the production of the pullets. During the winter period of November, December, January, and February, the period of high egg prices, the pullets made a production of 34.9 eggs per bird, while the hens laid only 19.7 eggs per bird during the same period.

TABLE No. I.—*Summary of Calendar Records*

	Pullets—150 Flocks			Hens—105 Flocks			Hens and Pullets—501 Flocks			All Birds—756 Flocks		
	Total number birds	Average size flock	Average prod. per bird	Total number birds	Average size flock	Average prod. per bird	Total number birds	Average size flock	Average prod. per bird	Total number birds	Average size flock	Average prod. per bird
Nov.	27,807	185	5.1	15,867	151	2.7	116,256	232	3.2	159,930	212	3.5
Dec.	27,347	182	7.8	15,536	148	3.2	113,845	227	4.2	156,728	207	4.8
Jan.	26,826	179	9.5	15,154	144	5.0	111,231	222	5.9	153,211	203	6.5
Feb.	25,903	173	12.5	14,871	142	8.8	108,776	217	9.8	149,550	198	10.2
Mar.	25,733	172	18.0	14,487	138	15.3	105,862	211	16.0	146,082	193	16.3
April	24,780	165	19.4	14,032	134	17.2	101,183	202	18.2	139,995	185	18.3
May	23,586	157	18.5	13,365	127	16.5	95,890	191	16.9	132,841	176	17.2
June	22,282	149	15.6	12,664	121	13.9	89,525	179	14.2	124,471	165	14.4
July	20,814	139	14.5	11,555	110	13.5	81,745	163	13.8	114,114	151	13.9
Aug.	18,738	125	13.0	10,347	99	12.5	73,492	147	12.8	102,577	136	12.8
Sept.	17,396	116	10.3	9,468	90	9.7	65,469	131	10.1	92,333	122	10.1
Oct.	15,435	103	6.0	8,611	82	5.9	58,578	117	6.1	82,624	109	6.0
Ave.	23,054	154	150.2	12,996	124	124.2	93,488	187	131.2	129,538	171	134.0
Percent reduction in size of flock		44.3			45.7			49.6			48.6	

We have no records to show the average difference in net income between the hen and pullet flocks. But in determining this difference one should not lose sight of the fact that the depreciation is greater during the pullet year than during the hen year. Also, that normally the mortality is greater on pullets than hens. When these two factors are taken into consideration, the labor income would not be as great as the egg production might indicate.

EFFECT OF TIME OF HATCHING

To study the effect of the time of hatching on the production during the following year, all the pullet flocks were divided into two groups: Those hatched before May 1 and those hatched after May 1.

TABLE II.—*Effect of Time of Hatching on Egg Production of Pullets*

Month	LIGHTS		NO LIGHTS		ALL PULLETS	
	24 flocks	22 flocks	83 flocks	21 flocks	107 flocks	43 flocks
	Hatched before May 1	Hatched after May 1	Hatched before May 1	Hatched after May 1	Hatched before May 1	Hatched after May 1
November.	8.5	3.8	5.2	2.5	5.9	3.2
December..	10.4	9.3	7.2	5.4	7.9	7.4
January...	12.0	12.3	8.2	8.5	9.1	10.4
February..	14.2	13.6	12.0	11.5	12.5	12.5
March.....	18.7	16.8	18.3	17.3	18.4	17.1
April.....	19.3	16.9	20.2	19.2	20.0	18.0
May.....	18.7	17.5	19.0	17.2	18.9	17.4
June.....	16.4	15.1	15.6	15.1	15.8	15.1
July.....	14.9	13.9	14.8	13.9	14.8	13.3
August....	13.8	12.2	12.9	13.7	13.1	12.9
September.	9.7	9.6	10.7	10.0	10.4	9.8
October....	5.4	6.3	6.3	5.1	6.1	5.7
Total....	162.0	147.3	150.4	139.4	152.9	143.4

This table also shows the effect of lighting on early and late-hatched pullets.

It is interesting to note that the time of hatching made an average difference of 9.5 eggs per bird on all the flocks. But dividing the flocks into two groups, those lighted and those unlighted, the difference in egg production due to time of hatch was 14.7 eggs per bird with the lighted group, and 11 eggs per bird with the unlighted group. The fact that there were 83 unlighted, early hatched flocks, and but 24 lighted flocks, brings the average production of the early hatched pullets down somewhat when compared to the late hatched pullets, where over half of the flocks were lighted.

EARLY HATCHED PULLETS THE HIGH PRODUCERS

In summarizing the calendar records, it becomes quite apparent that one has a decided advantage in making a high egg record if his flock is composed entirely of pullets, and especially if the pullets are hatched before May 1.

SUMMARY AND CONCLUSIONS

1. The average Demonstration Farm Owner in 1925 made a labor income of $2.17 per hen, based on the number of hens owned at the beginning of the year, and $2.69 based on the average number of hens for the year. The returns for 1924 were $1.99 and $2.50, which shows that the year 1925 was a slightly more profitable year than 1924.

2. The average egg production per hen (based on flock averages) was 140.3 in 1925, as compared to 138.2 in 1924.

3. The greater the egg production per hen the greater the cash receipts, expenses, and labor income or net profit per hen.

4. The greater the egg production and labor income per hen the greater the feed cost per hen.

5. The heaviest-producing flocks were the smallest in size, generally speaking. Other than this there appeared to be no connection between size of flock and egg production and profits.

6. The heavy-breed flocks averaged much smaller in size than the light-breed flocks.

7. There appeared to be little connection between the amount of culling done and the egg production and profits. Culling, no doubt, was done earlier on the heavy-producing flocks, but we have no evidence to prove this point.

8. The heaviest-producing flocks had the lowest mortalities.

9. The greater the egg production and labor income, the greater the gain in inventory. The lowest producing flocks showed a loss in inventory.

10. The Leghorns had an average egg production per hen of 145.9, Rhode Island Reds 133.2, Plymouth Rocks 131.2, and Wyandottes 130.8. The average for all light breeds was 145.7 and for all heavy breeds 131.2.

11. The average labor income based on the number of hens at the beginning of the year was $2.23 for Leghorns, Rhode Island Reds $2.39, Plymouth Rocks $1.95, and Wyandottes $2.31. The average for all light breeds was $2.21 and for all heavy breeds $2.19.

12. There was not a single month in which the average for all flocks reached the average for the standard 160-egg flock. The November average was very close to the standard.

13. The Calendar Records show that the flocks which were composed of all pullets produced 26 eggs per bird more than the flocks composed of all hens.

14. During the four winter months of November, December, January, and February, the pullets averaged 34.9 eggs while the hens averaged 19.7.

15. Pullets hatched before May 1 showed a greater egg production than pullets hatched after May 1.

16. The use of artificial lights increased the yearly egg production per hen.